Maintenance and Repair Welding (M & R)

IS IT EASY ?

Joining and Repair Welding Comparison

	Joining	Repair Welding
Base Metal	Known	Unknown
Base Metal Condition	Clean	Dirty, Rusty, Greasy
Joining	Similar grades	Dissimilar
Consumables	Known	Unknown
Welding Process	Defined	Need to decide
Technical Requirement	Known	Unknown
Welding Procedure	Standard (WPS/PQR)	Need to define
Component History	Known	Unknown
Time	Planned	Constraints

Joining and Repair Welding Comparison

In maintenance welding, there are many uncontrolled variables including:

- Unknown base metal conditions
- Dirty, rusty and grease-soaked work pieces
- Dissimilar materials
- Hard-to-reach and out-of-position repairs
- Time constraints

Expensive equipment in industries are subject to attack by-

- Abrasion
- Corrosion/Erosion
- Wear and tear

This creates enormous costs to industries.

Heavy machinery, expensive tools, dies require maintenance to restore their properties.

Solution

- Use of anti-wear product. This will increase the service life of machineries
- Automotive, Cement, Food, Mining and earthmoving, Pulp and paper, Recycling, Iron and Steel, Mechanical engineering, Tool and die making industries, etc.
- Good Maintenance and the right Maintenance products are like gold to any factory
- Allow you to reclaim worn or damaged parts at a fraction of the cost of a new part

Factors to consider ??

- What is the problem ? Is abrasion, impact, heat, friction, corrosion or crack present?
- Which is the most important?
- What consumable can meet the demands?
- What is the base material composition?
- What welding method is best to use?
- What skills do welders have?
- Is preheat necessary?
- Is there old hard facing on the part which needs to be removed?

Procedure

Welding of heavy machinery and expensive tool components requires a serious removal of defects, as well as contaminations.

Things to taken in to consideration:
- Removal of all defects
- Joint preparation
- Selection of welding process and welding consumables
- Preheat and interpass temperatures as well as post-weld heat treatment
- Welding procedures and execution

Build up and hardfacing

Restoring worn parts normally consists of three steps:

1. Buttering for a deposit that will dilute the carbon and alloy content of base material and eliminate the risk of cracking.

2. Build up worn areas must be rebuilt using tough, crack resistant welding materials, which can be deposited in an unlimited number of layers.

3. Wear resistant surface layers. Generally limited to 1/2/3 layers.

Build up and hardfacing

Final Hardfacing

Build-up layer, if required

Butter layer

Worn out base metal

Hard-facing is primarily used to restore worn parts, but it is worthwhile using this technique in new production as well.
The component itself can thus be made from a cheaper material and the surface properties are obtained by an overlay with the properties required for good wear resistance.

Type of Wear

The type of wear resistance determines the type of consumable that is selected.
Wear resistance, coupled with elevated temperatures, can be sub-divided into:

- Sliding, rolling, metal-to-metal (friction)
- Moderate to severe impact
- Moderate to severe abrasion.

Wear Factor

A large number of different wear factors exist, working alone or in combination.

For example; primary wear factor is abrasion and the second is moderate impact.

The hard-facing alloy that is chosen should therefore have very good abrasion resistance but also a fair amount of impact resistance.

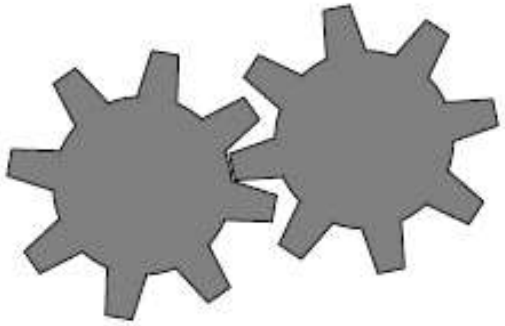
Metal-to-metal wear, Frictional or adhesive wear

Wear from metal parts that roll or slide against one another such as-

- Shafts against bearing surfaces
- Chain links against a roll
- Sprockets
- Steel mill rolls

Generally, contact between surface materials of the same hardness will result in excessive wear.

Martensitic hardfacing alloy is best choice.



Impact

The surface of the material will become deformed or locally fractured and even break away when exposed to impact and/or high pressure conditions. For ex. Crushing and milling operations.

Austenitic-manganese steel deposits offer the best resistance to pure impact wear as they work-harden.
This results in a hard surface and a tough material underneath.

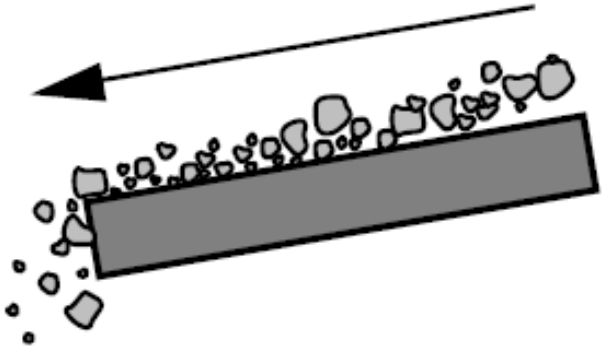
Typical components are-

- Crusher rolls
- Impact hammers
- Railroad points

Fine-particle Mineral Abrasion

This is caused by sharp particles sliding or flowing across a metal surface at varying speeds and pressure.
This will grind away material like small cutting tools.
Typical Ex. Dredging operations, transportation of minerals and agricultural components.

Relatively brittle high carbon-chromium alloys, such as carbide-containing alloys are used successfully to resist this type of wear.



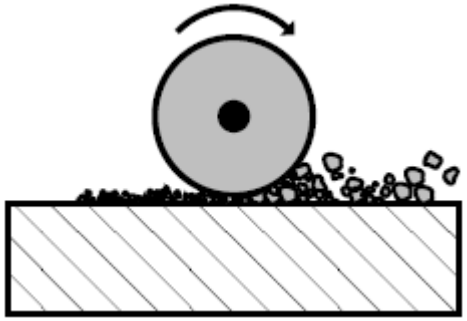
Grinding Abrasion: Abrasion + Pressure

This occurs when small, hard, abrasive particles are forced between two metal parts and crushed in a grinding mode.

Typical components are-

- Pulverizers
- Roll crushers
- Mixing paddles
- Scraper blades

Austenitic-manganese, martensitic and some carbide-containing alloys are used in such cases.



High-temperature wear: Heat, oxidation, corrosion

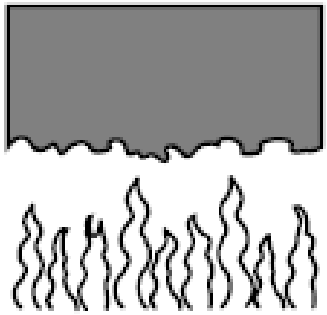
High-temperature service often results in thermal fatigue cracking. Thermal shocks by cyclic thermal stresses will occur in tools and dies designed for forging and hot working operations.

Martensitic steels, 5–12% chromium are very resistant to thermal fatigue wear.

Chromium carbide alloys have excellent wear resistance up to temperatures of around 600°C. For elevated temperatures, either a nickel-based or cobalt-based alloy is used.

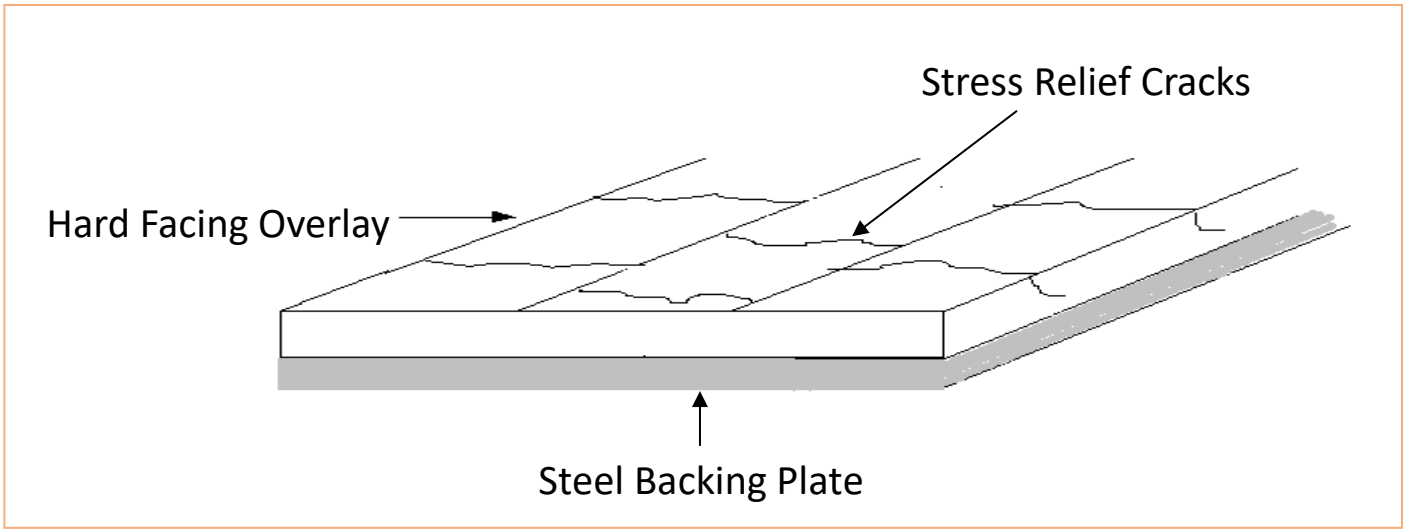
Typical Ex.

- Concast rollers, hot forging dies
- extrusion dies, stamping dies
- gripper tongs and sinter crushing equipment



Surface finish requirements

Hard-facing alloys range from easily machinable to non-machinable. Many of the hard-facing deposits contain “stress relief cracks”. Small cracks are formed across the weld bead so as to break up and reduce the amount of stress or pull the cooling weld metal exerts on the base material.



Surface finish requirements

Is machining after welding required or is grinding sufficient?
Is stress relief cracking acceptable?

As a thumb rule, Weld metal hardness:
< 40 HRc can be machined
>40 HRc can, however, be machined using cemented carbide tools.

This relief cracking is often not harmful to the performance of the hardfacing deposit and does not cause spalling or flaking.
If, however, the component is subjected to heavy impact, a ductile buffer layer will prevent this cracking propagating into the base material.

Selection of Alloy

- Nature & function of the component on which the consumables is to be applied.
- Service conditions to which the welding will be exposed.
- The projected life of the welding & the cost-effectiveness of welding operation.

Increased hardness does not always mean better wear resistance or longer service life. A number of alloys can have the same level of hardness but vary considerably in their wear resistance.

Service Condition	Brand
Extreme Abrasion at elevated temperature	Super Zedalloy, Super Zedalloy Ni
Extreme Abrasion, Moderate Impact	Zedalloy 16, Zedalloy VB, Zedalloy Bell
High Abrasion , Moderate Impact	Zedalloy 600
High Abrasion, High Impact & Corrosion	Zedalloy K
Moderate Abrasion , Moderate Impact	Zedalloy 550/500/350, Automig FC 580 / 600
High Impact, Moderate Abrasion	Zedalloy 12 Mn, Zedalloy 16 Mn, ADOR AS
Impact, Abrasion & Corrosion	Zedalloy 16 Cr, Zedalloy 20 Cr
Extreme abrasion, Erosion & Corrosion up to 800°C	Zedalloy CoCr-A

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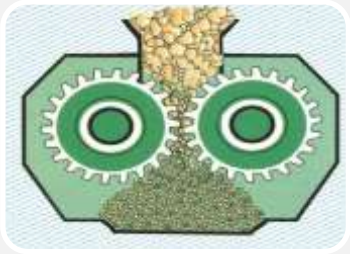
Applications in Steel Plants

RM Handling & Blending

Applications		Wear Condition	Recommended Product
	Stacker Reclaimer	Abrasion	SUPER ZEDALLOY
	Barrel Reclaimer	Abrasion	
	Bucket Lip	Abrasion	

Other applications include: Discharge Feeder, Receiving Hopper, Transfer Chute & Skirt Liner

Coke Plant

Applications		Wear Condition	Recommended Product
	Crusher Hammer	Impact/Abrasion	ZEDALLOY 16 Mn, AUTOCORE MnO/ ZEDALLOY 550, AUTOMIG FC 580
	Coke Cutter Ring	Abrasion	SUPER ZEDALLOY
	Quenching Car Wheel	Impact/Friction	BETACHROME N/ND

Continued.....

Applications		Wear Condition	Recommended Product
	Hammer Mill Rotor	Abrasion	SUPABASE X PLUS / ZEDALLOY 250/350
	Hammer Plates	Impact/Abrasion	ZEDALLOY 16 Mn AUTOCORE MnO/ ZEDALLOY 550 , AUTOMIG FC 580/600/ZEDALLOY 16

Sinter Plant

Applications		Wear Condition	Recommended Product
	Sinter Star Breaker	High Temp Abrasion/Impact	ZEDALLOY 12 Mn/16 Mn/ AUTOCORE MnO/ ZEDALLOY 16
	Supporting Rolls of Rotary Kiln	Abrasion/Friction	SUPABASE X PLUS / ZEDALLOY 250/350
	Kiln Shell	Joining	SUPABASE X PLUS/ MOLYTEN

Blast Furnace

Applications		Wear Condition	Recommended Product
	Bell & Hopper	Abrasion/ Corrosion/High Temp	ZEDALLOY BELL/ SUPER ZEDALLOY
	Distribution Chute	Abrasion	SUPER ZEDALLOY
	Throat Armour Plate	Abrasion/Erosion	SUPERINOX 312/ SUPER ZEDALLOY

Foundry

Applications		Wear Condition	Recommended Product
	Feed Screw	Abrasion	SUPER ZEDALLOY
	Vibrator Table	Crack	CASTEN/FERRICAST

Continued.....

Applications		Wear Condition	Recommended Product
	Molding Box	Crack	CASTEN
	Mixer Paddles	Abrasion	BETACHROME N/ND/ SUPER ZEDALLOY

Steel Melting & Hot Strip Mill

Applications		Wear Condition	Recommended Product
	Flux Chute Pipe	Abrasion	SUPER ZEDALLOY
	Wobbler	Abrasion/Impact	ZEDALLOY 250/350
	Slab & Billet Caster Rolls, Table Rolls, Edger Rolls	Corrosion/Heat Resistance	BETACHROME 17 Cr (For buffer layer before hard facing)

Continued.....

Applications		Wear Condition	Recommended Product
	Mill Spindle	Joining/Friction	SUPERINOX 312 or BETACHROME N
	Oxygen Lancer	Erosion	BRONZE

Application in Sugar Mill

Cane grabs

Base metal : Carbon Steel

The Cane grabs subjected to Abrasion & Impact
High Hardness requirement upto 600BHN

ADOR **ZEDALLOY 550 / ZEDALLOY 600/ FC 580/600** is suitable for the application

Cane Cutting Knife

Trash Plate

Base metal : Carbon Steel

Application involves heavy abrasion and teeth wear in case of Trash Plate
Require welding consumable which ensures high volume of evenly distributed Cr-carbide in the structure with high hardness

ADOR **SUPER ZEDALLOY** is suitable for the application, Hardness: 600 BHN

Fibrizer

Base metal : Carbon Steel

Service conditions include Heavy Abrasion and subsequent Wear

Welding Consumable: **Buffer Layer + SUPER ZEDALLOY**

Square Coupling

Base metal : Carbon Steel / CI

Repair, Overlay and Joining

Depending on coupling grade

ZEDALLOY 250 /350 for CS – Hardness: 250-350 BHN

CASTEN / FERRICAST for CI– Hardness: 150-190 BHN

Centrifuge Shaft

Base metal : Alloy Steel

Unknown material and high alloy grade joining, require crack free high strength joint

ADOR **SUPERINOX 312** - Highly resistant to weld metal cracks & fissures, Dual phase structure

Base metal : Cast Iron

Brake Drum

Joining and major repair work

ADOR **FERRICAST** effectively joins various cast iron grades of dissimilar thicknesses

Base metal : Steel / Cast Iron

Crusher Roller

Surface of roller should be rough and provide sufficient grip for cane being crushed. It should resist heavy loads and abrasion during crushing

ADOR **MAGANACANE** deposits highly wear resistant hemispherical dots on the rolls.
Hardness: 550-580 BHN

SS condenser

Base metal : SS 316

Require resistance against corrosion, pitting at high temperatures

ADOR **SUPERINOX 2A / 2C / 4A** provide maximum resistance to cracking, SCC, hot cracking at high temp. upto 850^{O}C

Base metal : Steel

Sprocket

Should withstand rolling and sliding abrasion with medium impact, medium hardness and machinability required

ADOR **ZEDALLOY 250 / 350** is air hardenable alloy with 250-350 BHN hardness will suffice the purpose

Centrifuge Screen

Base metal : SS

SS Joining and repair, require resistance to corrosion and liquid media

SUPERINOX 2A / BETANOX D / DL SS electrode which resist cracking, provide resistance against corrosion

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Applications		Wear Condition	Recommended Product
	Bull Gear Teeth (Cast Steel)	Wear	**TENALLOY 16 + SUPERINOX 312**
	Oliver Screen (Stainless Steel)	Crack / Tearing	**BRAS 3356**
	Pinion Teeth (EN 32)	Wear on Teeth	**NICALLOY Fe-3**

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Applications		Wear Condition	Recommended Product
	Shaft Splines (Cast Steel)	Friction	**SUPERINOX 312**
	Trash Beam (Cast Iron)	Crack	**CASTEN / CASTNICKEL**
	Scraper Plate (Cast Steel)	Teeth wear	**SUPER ZEDALLOY**

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Components	Base Metal	Wear Factors	ADOR Brand
Juice Ring	Cast Steel	Wear	**ZEDALLOY 550 / 600**
Striking Bar of Anvil	Steel	Wear + Impact	**ZEDALLOY 16Cr / 20Cr**
Juice Pump	Cast Iron	Wear	**FERRICAST**
Magma Pump	Bronze	Wear	**BRONZE**
Pump Shaft Keys	Steel	Wear	**SUPERINOX 312**
Turbine Casing	Steel	Crack	**SUPERINOX 312**
Cane Leveler Arms, Cane Loading Spikes	Cast Steel	Wear	**ZEDALLOY 550 / 600**
Roller Pinion	Cast Steel	Wear	**TENALLOY 16 + ZEDALLOY 350**

Components	Base Metal	Wear Factors	ADOR Brand
Cane Cutter Shaft	EN 19	Wear / Friction	**SUPERINOX 312**
Fibrizer Anvil Plate	Cast Steel	Abrasion	**TENALLOY 16 + SUPER ZEDALLOY**
Gear Box Housing	Cast Iron	Cracks	**CASTEN + FERRICAST**
Fibrizer Hammer	Carbon Steel	Wear / Corrosion	**SUPER ZEDALLOY**
Roller Journal Collar	Cast Steel	Friction / Corrosion	**NICALLOY Fe-3**
Ring Side Mill Collar	Cast Steel	Wear	**SUPERINOX 312**

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Components	Base Metal	Wear Factors	ADOR Brand
Mill Roller Teeth	Cast Iron	Broken Teeth	**CASTEN + FERRICAST**
Slipring Motor Shaft	EN-8	Friction	**SUPERINOX 312**
O T Gear	Cast Steel	Friction	**TENALLOY 16 + SUPERINOX 312**
Pinion Teeth	EN 32	Wear on Teeth	**NICALLOY Fe-3**
Roller Journal	Med. C. Steel	Crack	**BETANOX D**
Steam Line Valve Seat	Carbon Steel	Heat / Friction	**BETANOX D / BETACHROME N**
Unknown Material	Steel	Wear/Crack	**SUPERINOX 312**

Forging Industries

Components	Base Metal	Recommended Product	
Hot working dies e.g. Drop forging dies	DIN 1.2714, H11, H13, Tool Steels, DB-6	NIMOTEN PLUS 535 A	30-32 HRc
		NIMOTEN PLUS 535 B, AUTOMIG FC 400	38-42 HRc
Drop and Press forging dies	DIN 1.2714, DB-6, H11, H13	AUTOMIG MC 40, AUTOMIG MC 42	42-48 HRc
Press forging dies, Trimming dies	DIN 1.2714, DB-6	NIMOTEN HFD, AUTOMIG MC 50	50-54 HRc

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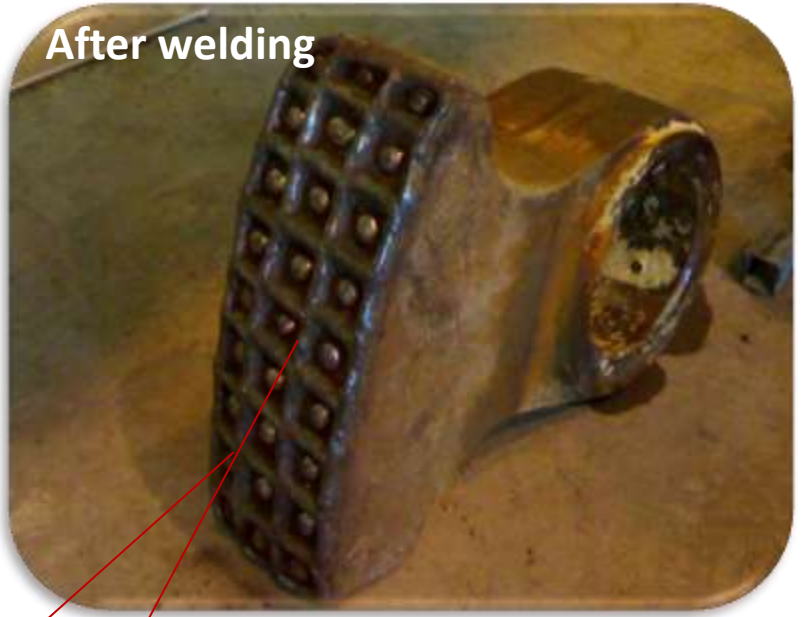
Sr. No.	PRODUCT	FEATURES	APPLICATION
1	**TENALLOY 80**	High strength, High impact toughness, Machinable weld deposit	Joining and repair welding of cracked dies, Welding of high tensile steels & heavy structures
2	**SUPERINOX 312**	Weld metal highly resistant to cracks & fissures, Excellent oxidation resistance, Machinable weld deposit	Repair welding of pressing dies, Trimming tools, Die & Spring steels, Free cutting steels, also suitable for joining
3	**NICALLOY Mo-5**	Ni-Cr-Mo-W alloyed deposit, Machinable weld deposit	Joining and repair welding of Forging counter die, Forging saddles, Hot forging & Trimming die, Hot forging hammers, Press tools
4	**ZEDALLOY K**	Air hardenable weld deposit, Resist metal to metal wear, abrasion, impact, Machinable by grinding only	Repair welding and hardfacing of blanking & forming dies, Cutting tools, Shear blades

Application in Cement Plant

CLINKER CRUSHING HAMMER OF CEMENT PLANT



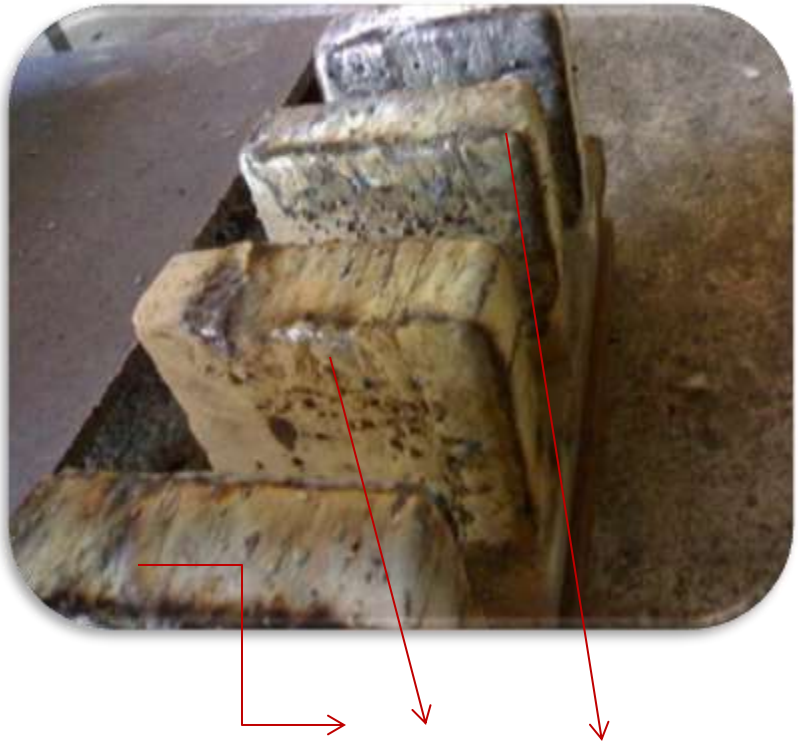
BETACHROMEN+
ZEDALLOY12Mn+
ZEDALLOY 550LH

SHOVEL BUCKET: LIP & SIDE WALLS

ZEDALLOY 12Mn+ZEDALLOY 550

ZEDALLOY 600

HAMMER OF COMPOST PLANT



BETACHROME N+ZEDALLOY
12Mn+ZEDALLOY 600

- High chromium carbide deposit for excellent resistance to mineral abrasion combined with moderate impact.
- Exhaust fan blades, chute plates
- Hardness: ~60 HRc

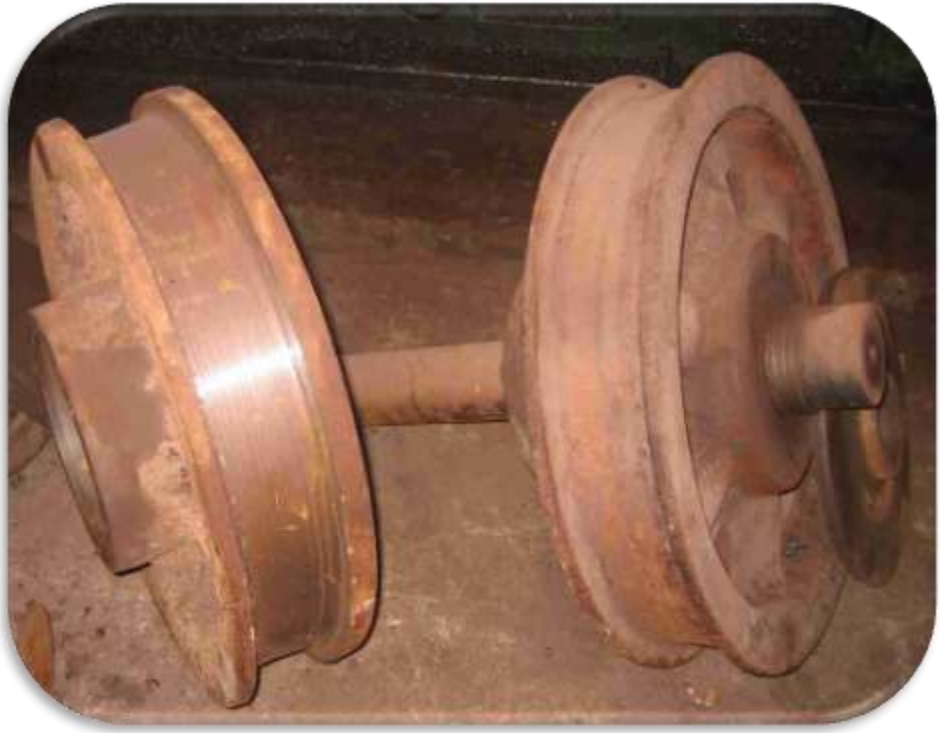
Ador Products:-

Super Zedalloy
Zedalloy VB
Zedalloy 600B

- Moderate friction and compression
- Crane wheels, Mandrels, gear teeth, chains
- Mainly used for heavy build up and as cushion layer.
- Hardness: ~30 HRc

Ador Products:-

Zedalloy 250/350(LH)



Applications in Mining

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	Components	Base Metal	Service Condition	AWL Brand
	Bucket Tooth	Mn Steel	Abrasion/Impact	Zedalloy 16Mn+Zedalloy 16/550
	Bucket Lip	Mn Steel	Abrasion/Impact	Zedalloy 16Mn+Super Zedalloy
	Track Shoes	Mn Steel	Friction/Abrasion	Zedalloy 12Mn/16Mn
	Sprocket	Steel	Friction/Abrasion/Impact	Zedalloy 350
	Rack pinion	Steel	Friction	Tenalloy 16/Superinox 312
	Rack Teeth	Steel	Friction	Tenalloy 16/Zedalloy 350
	Bucket Body	Mn Steel	Abrasion/Impact	Zedalloy 12Mn+Zedalloy 16/550
	Latch Bar	Mn Steel	Friction/Abrasion	Zedalloy 12Mn+Zedalloy 16/550
	Latch Keeper	Mn Steel	Friction/Abrasion	Zedalloy 12Mn+Zedalloy 16/550
	Slides	Steel	Friction	Tenalloy 16/Superinox 312
	Intermediate Hoist Shaft	Steel	Friction	Superinox 312
	Boom Stick	Steel	Cracks	Tenalloy 16/Superinox 312
	Swing Drum	Steel	Cracks	Tenalloy 16/Superinox 312
	Take Up Axel Shaft	Steel	Friction	Tenalloy 16/Superinox 312
	Shaft for Rack Pinion	Steel	Friction	Superinox 312
	Aluminium Fan	Aluminium	Cracks	Albond 5 Si
	Bevel Gear on Horizontal Propel Shaft	Steel	Friction	Superinox 312
	Idlers	Steel	Friction	Tenalloy 16+Zedalloy 350

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DRILL MASTER				
	Chassis	Steel	Cracks	Tenalloy 16/Superinox 312
	Main Base Frame	Steel	Cracks	Tenalloy 16/Superinox 312
	Support Lever	Steel	Cracks	Superinox 312
	Spool Valve Handle	Steel	Cracks	Tenalloy 16/Superinox 312
	DRP-2 Rotary Head Floating Spindles	Steel	Friction	Superinox 312
	Spindle Complete	Steel	Friction	Superinox 312
	Hoisting Winch Motor	Steel	Cracks	Tenalloy 16/Superinox 312
	Brake Lever	Steel	Cracks	Tenalloy 16/Superinox 312
	Tower Cylinder Bushing Bracket	Steel	Cracks	Tenalloy 16/Superinox 312
	Dust Collector Blower Cyclone Type Hosing	Cast Iron	Abrasion/Cracks	Casten/Ferricast
	Rod Changer Assembly	Steel	Cracks	Superinox 312
	Drill Rod Support Plate Guides	Steel	Friction	Tenalloy 16/Superinox 312
	Tower Support Bracket	Steel	Cracks	Tenalloy 16/Superinox 312

HAULPAK DUMPER				
	Pivot Pin	Alloy Steel	Friction	Superinox 312
	Suspension Eye	Alloy Steel	Cracks	Tenalloy 16/Zedalloy 350
	Pivot Pinion Carrier	Alloy Steel	Friction	Superinox 312

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COAL DRILL				
	Track Frame	Steel	Cracks	Tenalloy 16
	Chassis	Steel	Cracks	Tenalloy 16/Superinox 312
	Tower	Steel	Cracks	Superinox 312
	Tower Bracket D 14 Hammer	Steel	Cracks	Tenalloy 16
	Chuck D 14 Hammer	Steel	Friction/Abrasion	Tenalloy 16+Super Zedalloy
	Back Head	Steel	Friction	Tenalloy 16+Zedalloy 350
	Clevies (Dump Shaft)	Steel	Cracks	Superinox 312

BOTTOM DUMPER				
	Goose Neck	Steel	Cracks	Tenalloy 16/Superinox 312
	Goose Neckside Corner Box	Steel	Cracks	Superinox 312
	Door Opening Cylinder Pulley Bracket	Steel	Cracks	Superinox 312
	Exhaust Pipe	Mild Steel	Leakage	Bracc 2211/Tenalloy 16
	Exhaust Main Delivery Pipe	Cast Iron	Cracks	Ferricast/Bracc 2211
	Water Pump Bracket	Steel	Cracks	Tenalloy 16/Superinox 312
	Chassis	Steel	Cracks	Tenalloy 16/Superinox 312

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DOZERS				
	Carrier Rollers	Steel	Friction/Abrasion	Zedalloy 350
	Idlers	Steel	Friction/Abrasion	Tenalloy 16+Zedalloy 350
	Sprocket	Steel	Friction/Abrasion	Zedalloy 350
	C Frame	Steel	Abrasion/Friction	Tenalloy 16/Superinox 312
	Track Roller	Steel	Friction	Zedalloy 350
	C Frame Bracket	Steel	Cracks	Tenalloy 16/Superinox 312
	Base Arms	Steel	Abrasion/Cracks	Tenalloy 16+Zedalloy 350
	Blade Assembly	Mn Steel	Impact/Abrasion	Zedalloy 12Mn+Super Zedalloy
	Radiator Tube	Copper	Leakage	Bracc 2211
	Oil Cooler Tubes	Copper	Leakage	Bracc 2211
	Transmission Collar	Steel	Friction	Bracc 7700/Zedalloy 250
	Gear Shifting Lever	Steel	Friction	Superinox 312
	Track Frame	Steel	Cracks	Tenalloy 16/Superinox 312
	Idler Shaft	Steel	Friction/Abrasion	Tenalloy 16+Zedalloy 350
	Track Frame Lever	Steel	Cracks	Superinox 312
	Dozer End Bits	Mn Steel	Impact/Abrasion	Zedalloy 12Mn/Super Zedalloy

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Applications in Thermal Power Industry

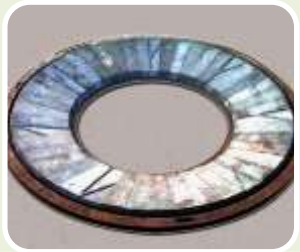
Coal Handling Plant Contd.....

Applications		Service Condition	Recommended Product
	Coal Burner Nozzle	High Temp	**ZEDALLOY 16**
	Nozzle Tip	Wear	**BETANOX C**

Coal Handling Plant Contd.....

Applications		Service Condition	Recommended Product
	Coal Mill Vertical Shaft	Wear	SUPERINOX 312
	Boiler Feed Pump	Wear	
	ID Fan Shaft	Wear	

Coal Handling Plant Contd.....

Applications		Service Condition	Recommended Product
	Bull Ring Segments	Vibration/Impact	**CASTNICKEL**

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Applications in Power Industry

Mills

Applications		Service Condition	Recommended Product
	Points & Crossing	Wear	ZEDALLOY 16 Mn
	Wagon Tippler Gear (Cast Steel)	Wear	SUPABASE X PLUS/ ZEDALLOY 250/350
	Wagon Tippler Gear (Cast Iron)	Wear	CASTNICKEL

Mills Contd.....

Applications		Service Condition	Recommended Product
	Dozer H Frame	Crack	SUPABASE X PLUS
	Dozer Cutting Edge	Wear	ZEDALLOY 16 Mn/ ZEDALLOY 550

Mills Contd.....

Applications		Service Condition	Recommended Product
	Ring & Tooth Hammers	Wear	ZEDALLOY 16 Mn/ ZEDALLOY 550
	Reclaimer Wheel	Wear	SUPABASE X PLUS/ ZEDALLOY 250/350

In conclusion, repair welding should be…

- Cost economic
- Increasing the service life
- Reduce downtime
- Conservation of machinery components

Thank You !!!